

CRYOGENIC FLUID DELIVERY SYSTEM

CLAIM OF PRIORITY

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This application is a continuation-in-part of U.S. Application Serial No. 10/054,784, filed October 29, 2001, *now U.S. Patent Number 6,581,390* ~~currently pending~~.

BACKGROUND OF THE INVENTION

The invention relates generally to cryogenic fluid delivery systems, and, more particularly, to a cryogenic fluid delivery system that vaporizes a portion of a pumped cryogenic liquid stream and uses the vaporized cryogen to power a linear actuator which, in combination with a supplemental linear actuator, drives the system pump.

Cryogenic fluids, that is, fluids having a boiling point generally below -150°F at atmospheric pressure, are used in a variety of applications. For example, liquid natural gas (LNG) is an alternative fuel for vehicles that is growing in popularity. As another example, laboratories and industrial plants use nitrogen in both liquid and gas form for various processes.

Cryogenic fluids are typically stored as liquids that require pressurization and sometimes heating prior to usage. The liquid nitrogen stored by laboratories and industrial plants typically must be pressurized prior to use as a gas or liquid. In the case of LNG fueling stations, the LNG is typically dispensed to a vehicle in a saturated state with a pressure head that is sufficient to meet the demands of the vehicle's engine. The saturated state of the LNG prevents the collapse of the pressure head while the vehicle is in motion. Alternatively, the LNG may be stored